ITEM 404.02000102 –DENSITY MEASUREMENT USING A DENSITY PROFILING SYSTEM

DESCRIPTION. Using a Density Profiling System (DPS), measure and evaluate the density of a compacted asphalt pavement.

DPS is a radar-based system designed to continuously measure asphalt pavement density.

EQUIPMENT. The DPS system will be a specially designed unit using Ground Penetrating Radar to measure the dielectric constant of in place asphalt and determine density. The hardware and software shall meet the requirements of AASHTO PP 98-19 except as modified herein. The unit shall consist of a minimum of 3 sensors and shall be equipped with integrated GPS capabilities. The unit shall be cart or vehicle mounted. The DPS shall provide real time measurements in percent compaction.

CONSTRUCTION DETAILS.

Pre-paving activities

For the project mix design, the Contractor shall fabricate 2 gyratory specimens at 88%, 91%, 94%, and 97% of the maximum theoretical density prior to the first day of production. The Contractor shall develop a dielectric/compaction calibration curve based on the fabricated specimens in accordance with MM99.

The Contractor shall calibrate the DPS using the dielectric/compaction curve and the corresponding air void test results prior to collecting data.

During production

The Contractor shall provide an operator certified by NYSDOT Materials Bureau to perform all activities described below.

The Contractor shall perform all the manufacturers recommended baseline calibrations (ie. Metal plate calibrations and/or air calibrations) prior to the collection of data.

The Contractor shall collect data over an area 1 mile in length or 50% of paved distance, whichever is greater per lane, daily. The data collection area shall consist of the entire width of paved area with a minimum of 6 equally spaced antenna passes per lane and shall include the area 100 feet before and after all coring locations, if any. The DPS shall collect measurements at a frequency of 1 measurement per foot or less. The antenna passes shall be laid out and labeled in accordance with MM99.

The Engineer shall identify any density core locations to the operator of the DPS after the final pass of the roller. The DPS operator shall record the GPS coordinates of the selected core locations and perform radar measurements using the "Stationary Data Collection" procedure in MM99.

For 60 series projects on non-coring days, the Contractor shall perform DPS measurements at locations where nuclear density readings are performed using the "Stationary Data Collection" procedure in MM99, at minimum of 3 locations per day.

DPS measurements shall be performed after the last pass of the finish roller and before the lane is opened to traffic. Perform DPS measurements on top course only.

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Reporting

The Contractor shall provide the Engineer the following daily:

- A single .csv file per lane with all recorded data for the day, in accordance with MM99.
- A single report indicating all stationary data collected, in accordance with MM99
- All raw data files, including any files with filetypes unique to the DPS system in use, if any.
- A .kml file per lane displaying compaction variations as a varying color scale.

METHOD OF MEASUREMENT. The collection and reporting will be paid based on a fixed unit price.

BASIS OF PAYMENT. The fixed price for this item will include the cost of all labor, materials, and equipment required to complete the work.

Item	Description	Unit
404.02000102	Density Measurement Using a Density Profiling System	Fixed-Price